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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,559	03/30/2004	Yew Wcc Cheong	111079-136359	1225

31817 7590 09/25/2006

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EXAMINER
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SHAKERI, HADI

ART UNIT	PAPER NUMBER
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3723

DATE MAILED: 09/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/816,559

Applicant(s)

CHEONG, YEW WEE

Examiner

Hadi Shakeri

Art Unit

3723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-16 is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 17-21 and 23-25 is/are rejected.
- 7) ☒ Claim(s) 6 and 22 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_.

Art Unit: 3723

**DETAILED ACTION*****Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 24, 2006 has been entered.

***Specification***

2. The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.

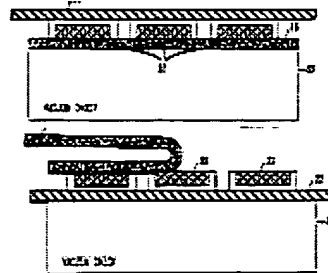
***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 4, 5, 7, 17, 20, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riding et al. (6,083,811).

Riding et al. meets all of the limitations of claims 1 and 17, i.e., partially cutting a wafer (10); applying a tape (16) to the front side (8) and grinding the back side (6) (04:1-5), except that it does not cut



Art Unit: 3723

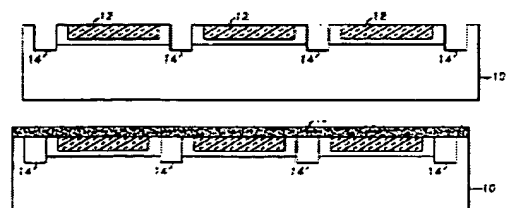
completely through the wafer only one mil deeper than the desired finished thickness. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to cut completely through the wafer for embodiments and/or application wherein the wafer is approximately the same thickness as the finished dices, e.g., within few mils. It is also noted that Riding discloses attaching dicing film (22) to keep the individual dice (20) together for the subsequent processing steps, thus it would have been obvious to one of ordinary skill in the art to integrate the step of mounting tape (22) prior to cutting, wherein the cutting may be completely through to saving time and since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claims 4, 5, 7, 20, 24 and 25, Riding et al. as modified meets all of the limitations, i.e., mounting the grinded wafer and removing the protective tape; attaching adhesive (22) to the backside of the wafer; mounting the wafer before cutting it (03:44-50); wherein a vacuum transfer device may be used to move the wafer; and wherein the cut is sufficient to prevent cracking.

Note that cutting and severing wafer into a plurality of portions, in view of prosecution is considered, at this time, to define cutting completely through and not partial cutting. Applicant may wish to amend the independent claims to clearly read over partial cutting in reading over Riding et al.

5. Claims 2, 3, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riding et al. in view of Applicant's Admitted Prior Art (AAPA).

Riding et al. as applied above under anticipation or obviousness rejections to claims 1 and



Art Unit: 3723

17, meets all of the limitations of the claims, except for disclosing laser scribing and dicing the wafer and for disclosing for the wafer to include low-K interlayer dielectric layer, but as indicated by Applicant, e.g., page 6, lines 3-7, it is known in the art for low-K wafer to first laser scribe the wafer and then saw cut it. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the above method by laser scribing and saw cutting in view of AAPA to prevent cracking for wafers having ILD layers.

6. Claims 21, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riding et al. as applied to claim 17, further in view of Inuzuka (6,777,310).

Riding et al. as modified above meets all of the limitations of claims 21 and 23, except for disclosing cutting the protective tape. Cutting the tape to the shape of the wafer is known as evident by Inuzuka. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the method of Riding et al. by cutting the tapes to the shape of the wafer as taught by Inuzuka for ease of manufacturing or cost reduction.

***Allowable Subject Matter***

7. Claims 8-16 are allowed.

8. Claims 6, 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: "completely" cutting the wafer instead of "partially" as in Riding et al. and cutting the protective layer and the adhesive layer to define a perimeter of the adhesively held-together semiconductor wafer, as recited in the above claims in addition to the other limitations in the claims place these claims in condition for allowance.

Art Unit: 3723

***Response to Arguments***

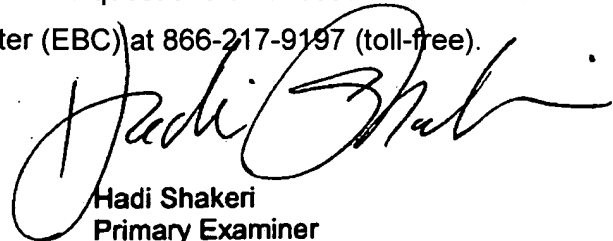
10. Applicant's arguments filed July 24, 2006 have been fully considered but they are not persuasive. The argument that the Riding et al. does not disclose applying a tape to the front side to form a taped-together wafer, is not persuasive, since Riding et al. discloses tapping a front side to protect the wafer, whether it is to "form" or to protect, (intended use language) does not exclude the reference from reading over the claims. However, the amended claims are considered at this time, to distinguish over partially cutting as originally claimed. The claims as amended now are considered to be directed to the embodiment disclosed for completely cutting through the wafer, and as indicated above, Riding et al. discloses cutting the wafer deeper than the desired depth, thus application in which the depth of the wafer and the desired depth are within few mils, cutting through the wafer would have been obvious to one of ordinary skill in the art.

***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hadi Shakeri whose telephone number is (571) 272-4495. The examiner can normally be reached on Monday-Friday.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Hadi Shakeri  
Primary Examiner  
Art Unit 3723  
September 15, 2006